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Exchange Rate Regime Choice

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Summary: The choice of an adequate exchange rate regime proves to be a highly sensitive field within which the economic authorities present and confirm themselves. The advantages and disadvantages of fixed and flexible exchange rate regimes, which have been quite relativized from the conventional point of view, together with simultaneous, but not synchronised effects of structural and external factors, remain permanently questioned throughout a complex process of exchange rate regime decision making. The paper reflects the attempt of critical identification of the key exchange rate performances, with emphasis on continuous non-uniformity and (un)certainty of shelf life of a relevant choice.

Key words: Exchange rate regimes, Structural determiners, External determiners

JEL: F30, F40

1. Introduction

The choice of the exchange rate regime[1] is a complex decision making process of economic policy makers. This decision making process incorporates the analysis of advantages and disadvantages of fixed vs. flexible exchange rate regimes. Having these arguments in mind, the economic policy makers study relevant variables that affect the considered option. Exchange rate regime option determiners include older (traditional) and later (contemporary) approaches. The analysis of different variables affecting the exchange rate regime confirms the attitude that international environments and characteristics of the relevant country determine the appropriate selection. The exchange rate regime option determiners analysed in this paper can be classified into several key groups (Levy Yeyati et al, 2002):

- The optimum currency area theory
- Real vs. nominal shocks
- The exchange rate anchor
- The "impossible trinity"
- The "currency mismatching" or "currency disparity" issue

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[1] Dollarisation, foreign currency board, monetary union, adjustable parity, crawling parity, corridor regime, dirty and clean foreign currency floating.

The above listed determiners can be analysed from two perspectives: traditional and contemporary. The *traditional approach* includes views that have been present for a longer period of time in the exchange rate regime option analysis. This approach includes the theory of optimum currency area and nominal vs. real shocks. The *contemporary approaches* link the adoption of a fixed parity with economic policy bearing no credibility and yielding dissatisfying results in the establishment of macroeconomic, inflationary stability with the exchange rate as a nominal anchor. Through eliminating capital barriers and forming significant capital mobility, 'impossible trinity' emphasises the difficulty of maintaining parity with speculative impacts, including sudden capital inflows and outflows. The currency mismatching/disparity in denomination of active and passive items aggravates currency fluctuation due to fear of depreciation/devaluation. Aside from the above-mentioned traditional and contemporary approaches in the exchange rate regime selection, other approaches exist. A new aspect of study of the exchange rate choice determiners can be identified through differentiating between the external and structural (internal) macroeconomic performances. *External factors* include commercial integration, shocks vulnerability, types of shocks, and political integration. *Structural (internal) factors* include inflation level, level of foreign currency reserves, capital mobility, labour mobility and nominal flexibility and product and export diversification.

2. Advantages and disadvantages of fixed and flexible exchange rates

Making decisions about exchange rate regime options involves many arguments and counterarguments for application of fixed or flexible exchange rate arrangements (Poirson, 2001; Frenkel, 2003; Bergsten, 1999, Haggart, 1999; Sachs and Larrain, 1999; Kenen, 2000; Domac at al., 2001). The inherent advantages and disadvantages of fixed and flexible exchange rates need to be considered from the aspect of specific macroeconomic performance and goals of the relevant economy.

Fixed exchange rates

Fixed exchange rates reduce foreign currency risks in international trade and investment transactions. If the exchange rate is fixed and the market is confidently maintained at a certain level, there is no need of market stakeholders for hedging from sudden exchange rate changes. Planning and predicting the process of decision making, exercised by economic authorities, investors and economic entities, is facilitated by economic stability that is often connected with a fixed exchange rate regime.

Fixing national currency with a foreign, low-inflationary currency is an action governments implement to achieve and maintain a low inflation rate. The

credibility or monetary discipline[2] argument is emphasised in particular for countries with a desperate need for rapid disinflation after a hyperinflationary period. The exchange rate serves as a nominal anchor in the process of macroeconomic stabilisation, or disinflation. Although the governments could gain credibility through the implementation of a fixed exchange rate regime, an absolute credibility cannot be guaranteed. The possibility of devaluation is sufficient for the existence of the market stakeholders' doubts, vulnerable credibility and speculative attack possibility. The rigidly fixed exchange rate arrangements, specifically monetary union, currency board, and dollarization, with either eliminated or reduced possibility of devaluation, are therefore favoured.

The fixed exchange rate is more susceptible to currency crises, in other words, to speculative attacks. In the case of a chronic current account deficit, speculators begin exchanging assets in national currency to foreign currency, assuming currency devaluation. Sufficient foreign currency reserves in the country can be used for interventions on the foreign currency market in order to defend the fixed currency parity. However, diminishing reserves is also a sign of weakness in currency defence, therefore providing continued speculative attacks on devaluation. Bubula and Otker-Robe (2003) studied the vulnerability of fixed, intermediate, and flexible exchange rate regimes to currency crises in the period from 1990 to 2000 for all IMF (International Monetary Fund) members. Comparing fixed, including hard and soft, parities with flexible exchange rate regimes, the authors conclude that fixed parities are more vulnerable than flexible exchange rates: approximately ¾ of crisis episodes in the analysed period are connected with fixed parities. The differentiation between soft and hard parities, namely the extraction of intermediate regimes, leads to the conclusion that intermediate regimes are most vulnerable to currency crisis. Conversely, hard parities are immune to currency crisis[3], although are not to be excluded entirely.

The limitation in fixed exchange rate regime application is a necessity of parity defence in the conditions of market pressures to exert the currency devaluation or depreciation. Maintaining parity suggests either an interest rate increase or exportation of foreign currency reserves. Eichengreen and Rose (2001) empirically compare the consequences on macroeconomic performance in cases of successful and unsuccessful fixed parity defence. The research results indicate that countries with unsuccessful parity defence suffer from significant output decrease - on the average, one year of economic growth or 3% of GNP - compa-

[2] According to Kenen (2000) monetary discipline as the argument in favour of fixed exchange rate regimes has three aspects: *first*, the aspect of monetary shocks annulling, *second*, credibility import (monetary policy of the country with hard currency) and *third*, the disinflation process (the application of the exchange rate as a nominal anchor).

[3] Although the occurrence of currency crises is less likely in the regime of rigidly fixed exchange rates, the possibility of speculative attacks is not entirely excluded. Examples include speculative attacks on the Currency Board of Hong Kong during the Asian crisis in 1998, the collapse of the Argentinean Currency Board at the end of 2001, and the attack on the Currency Board of Bosnia and Herzegovina in 1999.

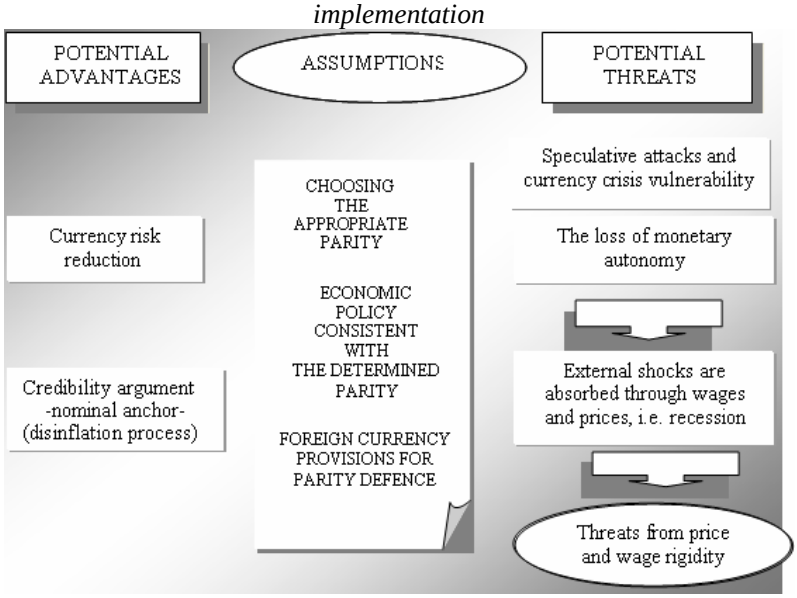
rable to countries with successful defences. However, results are valid only for a period of one year following the parity defence, in other words, the speculative attack event; subsequently, the difference in output loss between successful and unsuccessful defence disappears.

The choice of a fixed exchange rate regime implies the loss of monetary sovereignty. The fixed exchange rate imposes restrictions to monetary policy. Similar to fiscal policy, monetary policy is subject to the defined fixed parity, due to the impracticality of budget deficit monetization policy enforcement.

The external shocks are reflected on wages and prices. However, prices and wages are often rigid and do not decline easily. Labour unions and contracts could deteriorate wage adjustments to external shocks. This results with imbalance leading to speculative attacks on relevant currency. Parity defence could be extremely painful and expensive for an economy. The cost of defence refers to restrictive monetary policy in the form of interest rate increases, making nationally denominated currency assets more attractive for investors, but with simultaneous obstruction of domestic economic activities and recession in economy.

In contemporary conditions of liberal capital trends, a growing consensus suggests a country could enjoy benefits of a fixed exchange rate only in two ways: through maintaining capital barriers in order to limit directly the vulnerability of private speculations, or accepting loan obligations aimed at parity maintenance, enabling confidence in monetary authorities to reject speculative attacks. Capital barriers reduce access of the relevant country to certain types of foreign investments, but despite the above-mentioned shortcoming, there is growing interest in capital barrier implementation, evident in examples of Chile, Columbia, Malaysia, and, in somewhat different form, China and India. Another solution implies the acceptance of rigid regimes with the strongest credibility of monetary policy, specifically monetary union, dollarization, and currency boards. Scheme 1 presents the above-mentioned advantages, assumptions, and potential threats in the fixed exchange rate implementation.

Scheme 1. *Potential advantages, assumptions and threats of fixed exchange rate implementation*



The first assumption of a successfully functioning fixed exchange rate is an adequate parity setting at the equilibrium exchange rate level (Scheme 1). The exchange rate initially defined at an equilibrium level does not guarantee the long-term success of the fixed exchange rate arrangement. The equilibrium exchange rate changes with the shifts of macroeconomic performances while a nominal exchange rate is maintained at the initial, unrealistic level. Consequently, fixed regimes are susceptible to the problem of real appreciation or overvalued currency; the inverse problem is rare. Scheme 2 presents problems that can appear from maintaining an unreal fixed parity in the sense of currency overvaluation. The real exchange rate appreciation causes external misbalance, explicitly a current account deficit. Possible reactions to monetary authorities include the intervention, adjustment or exchange rate control. Foreign currency market intervention can temporarily maintain a fixed parity, but possible threats exist, including depleting foreign reserves, speculative attacks, and finally, devaluation or a transition to flexible exchange rate arrangements. Another option of unreal parity maintenance is adjustment, specifically economic contraction, leading to internal equilibrium distortions or recession. The exchange control, as the third possibility, could keep the parity fixed due to capital inflow/outflow blocking, and therefore impossibility of the same to endanger the parity with speculative trends. However, capital controls have a distortion effect and cannot be applied for a prolonged period of time.

If all options of maintaining an unrealistic exchange rate appreciated in real terms do not succeed, the economic authorities are faced with huge problems. This situation depends on specific variables, such as external debt, transmission mechanisms of the exchange rate on inflation, economic dependence on imported goods, non-price competitiveness factors of export products, et cetera. The unsuccessful defence (the surrender of economic authorities), i.e. devaluation, could results in deteriorating of internal and external balance. If the inflationary exchange rate transmission mechanism is significant, the currency-mismatching dilemma is further emphasised and the country does not fulfil the Marshall-Lerner criteria, the internal and external balance will simultaneously deteriorate.

Scheme 2. *Consequences of overvalued exchange rates*

OVERVALUED CURRENCY OR REAL APPRECIATION		
Expensive export Cheap import	⇨	External disequilibria (Current account deficit)
POSSIBLE REACTION OF **MONETARY AUTHORITIES**		**POTENTIAL THREAT**
1) Exchange rate defence using interventions at the foreign currency market		possible depletion of foreign reserves – speculative attack - devaluation or depreciation
2) Exchange rate defence with adjustment (contraction) in economy		internal disequilibrium - recession
3) Exchange control and capital barriers		distortion and temporary

Potential effects of unsuccessful, overvalued currrency defence => **Devaluation** => **Inflation** through transmission mechanism => **Financial colapse** due to currency mismatching (debts connected with foreign currency clause increase allocation provisions in national currency) => **Survival of external disequllibrium** (deficit of the current account portion of the balance of payments) due to the unfulfilled Marshal-Lerner criteria (import dependence and uncompetitive export sector according to non-price competetiveness factors) => Possible **simultaneous** existence of internal (inflation) and external (deficit) balance.

Flexible exchange rates

The flexible exchange rate is an absorption mechanism of external and domestic shocks. The external shock affects wages and prices in fixed exchange regimes.

The application of flexible exchange rates result in exchange rate increases (depreciation) and decreases (appreciation) depending on the altered economic conditions, assuming direct noting. The flexible exchange rate absorbs shocks, instead of absorption through internal equilibrium objectives, such as output, employment rate, and price level. Edwards and Levy Yeyati (2003) empirically confirmed the argument that flexible exchange rates easily absorb the negative external shocks, denoted by negative changes in exchange ratios or the relations between export and import prices. Investigating 74 developing countries in the post Bretton Woods era, Broda and Broda et al. (2003) confirm better absorption of external shocks of deteriorated trade relations in flexible regimes in comparison with fixed regimes. The deteriorated trade relations significantly affect the real output in fixed regimes contrary to flexible regimes, where the nominal exchange rate 'absorbs' the external shock. Broda concludes that the real exchange rate is depreciated momentarily and significantly in a flexible regime, while in a fixed regime, the real depreciation is insignificant and occurs two years later. Negative external shocks in a fixed regime are deflationary, while it is inflationary in a flexible regime. It has been proven that 10% of deterioration in trade ratios, or a decrease of export prices, induces the average decrease of real output that is approximately 1,7% higher in fixed, compared to flexible, regimes.

Flexible exchange rates imply autonomy of monetary policy and greater flexibility of macroeconomic policy. Governments can use interest rates in order to stimulate or slow the economy, depending on specific goals and the macroeconomic situation, without disturbing the defence of certain currency parity. Monetary policy in a fixed exchange rate regime is imported from the reserve currency country, proving problematic in the case of asymmetric economic cycles of two countries. Mishkin (1999) analyses different monetary regimes, including the exchange rate as a nominal anchor. The author emphasises the threat of importing monetary policy from the country with hard currency in the presence of asymmetric macroeconomic positions and performances. The example is the reunification of Germany, when the costs of unification were financed with fiscal expansion, but at the same time, in order to withhold the ongoing inflation, the interest rate was raised. Restrictive monetary policy was also transferred on other countries participating in the Exchange Rate Mechanism I (ERM I), the key feature of which was fixing other European currencies to the German mark. In addition to the recession in economic activities and an unemployment rate increase, the currencies of countries participating in the ERM I were vulnerable to speculative attacks, as speculators expected a devaluation or depreciation of currencies. Some currencies were devalued, including British, Italian, Spanish and Swedish currencies, while only French currency maintained the same parity.

The necessity for intervention on the foreign currency market is reduced with defining the market oriented exchange rate. Although reduced, the need for interventions is not annulled completely. In practice, countries with flexible exchange rate arrangements intervene to cope with short-term liquidity crises that

are linked with short term liabilities exceeding foreign currency reserves, speculators' panic or contagious foreign currency crisis.

The flexible exchange rate explicitly implies the existence of risk. In fixed exchange rate regimes, the inflexibility of the parity is assumed, in addition to the absence of currency risk. Market stakeholders do not hedge against possible changes of the exchange rate in the form of devaluation. However, if devaluation occurs regardless, there is the possibility to initiate chain bankruptcy and general financial instability. In flexible exchange rate regimes, the economy and investors must hedge currency transactions: daily fluctuations of the nominal exchange rate provide reminders of currency risk inherent in flexible regimes.

However, excessive variability and currency misalignments are imminent for flexible exchange rates. In terms of variability and instability under a flexible exchange rate, the real exchange rate is, by nature, more variable under a flexible regime due to constant changes of the nominal exchange rate. Flexible exchange rates could be extremely unstable, especially in conditions of great and sudden capital inflows and outflows. If a currency value decreases on the exchange market, investors could lose confidence in the subject currency, causing sudden capital outflows. The excessive variability is negative also from the aspects of aggravated planning and anticipating future economic stakeholders.

Exchange rate misalignments (See in: Bergsten, 1999; Haggart, 1999, Trade and Development Report, 2001) indicate either the possibility of overvaluation or an undervaluation of a currency under conditions of market determination of an exchange rate. In the world of perfect information, a flexible exchange rate would reflect perfectly a currency value. With the decline of productivity in a certain country, currency would depreciate and the exchange rate would increase (assuming direct noting) in order to follow the real negative change in an economy. But the experience from the 1980s, when the U.S. dollar and Japanese yen were oscillating excessively on the market, indicates the disconnections between rate fluctuations on foreign currency markets and fundamental changes in the real sector of these economies. The excessive variations are connected with imperfect information on financial markets. Traders and investors react to rumours - to activity they assume will happen - inducing misalignment impact on the exchange rate. The examples of real appreciation under flexible exchange rates are Czech Republic, Poland, Hungary, Mexico, and USA. Although the exchange rate of koruna is flexible, Czech Republic experienced huge capital inflows, fast appreciation and a significant current account deficit. The situation in Poland is similar, given their employment of a flexible exchange rate. Having widened the corridor in accordance with the ERM II, Hungary experienced a sudden real appreciation and increase of the current account deficit. Mexico resides as the example of a combination of a flexible exchange rate with real appreciation and constant - although more moderate in comparison to previous cases - current account deficit. The combination of chronic current account deficits and over-

valued currency can be found among the developed countries as well, for example, in the U.S.

Scheme 3 represents the above-mentioned positive aspects of flexible exchange rate application, including potential threats and conditions for favourable flexible exchange rate selection.

Scheme 3. *Flexible exchange rates*

Positive aspects of flexible exchange rate regime application:
Autonomy of monetary policy
(countercyclic purpose ⇨ internal balance)
External shock absorption
(automatic corrections of an exchange rate in the form of depreciation/aprecciation)
Automatic balance of payments balancing ⇨ external balance
Lower possibility of a currency crises occuring
⇨ absence of target for specullative attacks
⇨ hedging from currency risks and elimination of the currency mismatching problem
Foreign currency reserves are not necessary in the function of an intervention instrument, i..e. instrument of defence of the parity set in advance.

Potential threats
Currency risk and excessive variability
Possibility of an exchange rate misalignment due to foreign currency market imperfections, deviations from fundamental macroeconomic variables:
⇨ undervaluation → growing share of liabilities denominated in foreign currency
→ possible inflation
⇨ overvaluation – deficit of the current account of the balance of payments

Fixed exchange rates are recommended in the struggle against inflation. Shifting the focus from inflation to the problem of economic growth proves flexible exchange rate regimes are favoured. Certain papers (Ghosh et al., 1996; Rogoff et al., 2003) confirm higher economic growth under a flexible exchange rate regime compared to the fixed exchange rate regime with superior inflationary performance. Releasing of monetary policy from the obligation of supporting the specific parity creates the possibility to commit to domestic goals, in particular to more intensive economic growth. While monetary policy concentrates on achieving internal balance, flexible exchange rates set external balance automatically and absorb real and external shocks without allowing recourse at the output level. Levy-Yeyati and Sturzenegger (2001) study relations between economic growth and exchange rate regimes for 154 countries in the post Bretton Woods era (1974-1999). The conclusion of the research indicates no significant impact of the exchange rate regime on economic growth in developed countries, while there is a significant connection in developing countries. Developing countries using flexible exchange rate regimes record higher economic growth

and lower output variability. Investigating *de facto* applied exchange rate regimes, based on the criteria of the foreign exchange rate variability and variability of foreign currency provisions, the authors find that real annual *per capita* growth under flexible regimes is 2,2%, while it is 1,6% for fixed exchange rates. Excluding the developed countries from this calculation, due to a lack of significant correlations between economic growth and the foreign exchange regime, the difference in annual *per capita* growth in favor of flexible exchange rate regimes is 0,8%.

Fixed vs. flexible exchange rates: controversies

It is not possible to offer final conclusions based on the above-mentioned advantages and disadvantages of fixed and flexible exchange rate arrangements. Many of these arguments show multiple aspects. Table 1 contains the review of macroeconomic performances, limitations and the relativity of (counter)arguments in identifying advantages and disadvantages of fixed *vs.* flexible exchange rates.

A consistent economic policy is indispensable, although the battle against *inflation* falls within the field of fixed exchange rates. Otherwise, the imported credibility gets undermined. Conversely, inflation targeting as a monetary policy framework under the flexible exchange rate regime brought impressive results in keeping inflation under control in practice. However, inflation targeting requires a stable macroeconomic environment, knowing the exact relationship between monetary policy instruments and inflation, and a possibility to predict inflation. The above-mentioned facts indicate that inflation performance could be acceptable in both cases, although inflation targeting is not a strategy for disinflation, contrary to a fixed exchange rate used as a nominal anchor.

Table 1. Macroeconomic performances under fixed and flexible exchange rate regimes

Macroeconomic performances	Inflation	Economic growth	Variability	Crisis vulnerability
Fixed Exchange Rates	Higher credibility of monetary authorities and lower inflation. The inflation could be induced with inadequate economic policy.	Economic growth and trade can be initiated through transaction cost reduction. Investments and trade can be initiated with exchange rate stability and interest rate reduction.	Variability can be increased with real shocks and nominal rigidities. .	Significant risk from speculative attacks, especially with capital liberalisation.
Flexible Exchange Rates	Significance of 'imported' credibility decreases with strengthened economic institutions and financial market development.	Due to shock absorption and less distortion from real shocks, greater economic growth can be induced.	Real exchange rate variability can be transferred on real activity.	Less risk from currency and banking crisis occurrence.

Source: Rogoff et al. (2003)

Economic growth is a field where flexible exchange rate regimes offer superior results. Thanks to shock absorption and thus weak impact on the output reduction, superiority of flexible regimes is assumed from the aspect of economic growth induction. However, uncertainty in exchange rate movements, similar to daily fluctuations in flexible regimes, could curtail investments and trade activities, therefore negatively affecting economic growth. Consequently, the need to maintain the fixed parity with higher interest rate and uncertainty in successful defence could have a negative impact on investment activities. Consequently, it is very difficult to offer general conclusions about the influence of fixed or flexible exchange rates on economic growth[4].

[4] See more regarding the possibility of positive impact of fixed and flexible exchange rates on economic growth and the impossibility to define a clear connection between the foreign exchange regime and economic growth in Domac et al. (2001).

Due to the nature of daily fluctuations in the nominal exchange rate, *variability* is emphasised as a disadvantage of flexible exchange rates. The exchange rate stability is emphasised as a positive aspect of fixed exchange rate applications. However, fixed exchange rates do not isolate a country from real shocks, but they require adjustments inside the economy. In the case of nominal rigidity, fixed exchange rates could often be adjusted, depending on the institutional obligation of maintaining parity, and show higher variability compared to flexible regimes.

Finally, the *currency crisis* vulnerability is the key negative characteristic of fixed regimes. Although speculative attack vulnerability under a fixed regime is significantly higher considering the presence of a specific target, the occurrence of currency crises is not excluded from flexible arrangements.

3. Traditional and contemporary approaches to exchange rate regime option determiners

Traditional approach

The *theory of the optimum currency area* (OCA) concentrates on trade and geographic characteristics of a certain country and compares, from that aspect, the benefits of a stable exchange rate (in relation to the main trading partners) and flexible regimes. According to the OCA theory, the fixed exchange rate option represents a convenient solution under the following circumstances:

- Significant trade links with the anchor country (countries), i.e. the emphasised geographic concentration of trade activities
- Greater openness of a country, i.e. greater share of trade activities (export and import) in GDP
- Small size of a country, positively correlated with openness and increase of positive trade effects on the exchange rate stability
- A country facing similar shock vulnerability as an anchor country (countries), i.e. the existence of symmetric shocks
- Factors of production (labour and capital) are mobile
- The existence of fiscal transfers

It is the matter of characteristics reducing negative aspects of accepting the fixed exchange rate regime in the form of losing the monetary sovereignty and maximizing positive aspects through the disappearance of exchange rate risk and foreign exchange instability. *Monetary efficiency* implies a stimulation of international trade and investments through exchange rate stability and reduction of exchange rate risks that are emphasized in circumstances of stronger economic (trade and factor) integration in a currency union. The *loss of economic sovereignty* is certainly reflected in the absence of a fixed exchange rate application. The independent implementation of monetary, fiscal and foreign currency policy measures aimed at the output and employment stabilization is not possible. Significant trade integration, high economic structure correlation, fiscal federalism

and capital and labour mobility reduce the necessity for sovereign monetary policy as a necessary sacrifice of entering into the monetary union or implementation of other rigid forms of exchange rates.

From the aspect of the *vulnerability to real vs. nominal shocks*, it is appropriate to choose the fixed exchange rate regime in case of the country's exposure to nominal (monetary) shocks. Flexible exchange rate regimes are adequate in circumstances of real and external shock vulnerability. Thus, a country decides on an adequate regime depending on its vulnerability to real *vs.* monetary shocks, maintaining that the significance of real shock (the significance of monetary shocks, i.e. inflation as a problem, is reduced) has increased in contemporary circumstances of growing international trade and financial integration. A continuation of a flexible exchange rate regime acceptance trend is expected.

Contemporary approach

Exchange rate as a nominal anchor is used as an argument of exchange rate pegging in circumstances when the economic authority does not have the indispensable credibility or when there is no confidence of general public in nominal stability maintenance. The economic authorities 'import' missing elements for macroeconomic stability creation by fixing a currency for strong and stable currency, importing indirectly the recipe of anti-inflationary monetary and fiscal policy. The credibility aspect of a foreign exchange rate as a political crutch forces vulnerable governments to expansive and political pressures, thereby creating the inflation to a fixed foreign exchange rate in such a way to limit the discretionary manoeuvre space for economic policy creators. From the aspect of the considered criterion, strong, credible and disciplined governments with healthy macroeconomic positions are more inclined to choose flexible exchange rates.

'Impossible trinity' refers to the impossibility of simultaneous accomplishment of three important goals: exchange rate stability, monetary policy independence and complete integration in the capital market. In circumstances of comprehensive capital mobility, monetary policy cannot be simultaneously committed to maintaining the exchange rate stability and slowed output fluctuation, which is the consequence of real shock caused by increased capital mobility. As deepening of financial integration and occurrence of new financial innovations weaken the effectiveness of capital controls, the dilemma of monetary policy-exchange rate stability grows in significance. Monetary policy could prevail in the selection process because financial integration bears the threat of significant real shocks, and can be absorbed only by flexible exchange rate arrangements.

Balance of payments effects and financial dollarization as the arguments in favour of the fixed exchange rate stability are used in financially dollarized countries, with significant denomination of private and public liabilities in foreign currency, while receivables are denominated in domestic currency. Circumstances in which liabilities are denominated in foreign currencies – the 'currency mismatching' problem - the country tends to fix the parity of its national cur-

rency. Otherwise, significant nominal currency depreciation could threaten the solvency of the national economy, defined as a 'fear of floating.' Accordingly, the expressed financial dollarization is positively correlated with the country's inclination to fix the value of its national currency.

4. Structural (internal) and external factors in the exchange rate regime selection

Eichengreen et al. (1998) use the following key variables in the exchange rate regime selection:

- Inflation rate
- Foreign provisions (reserves) level and capital mobility
- Labour mobility level and nominal flexibility
- Production and export diversification
- Flexibility and sustainability of fiscal policy
- Level of trade and political integration
- Symmetry and types of shocks
- Non-economic criteria

Eichengreen et al. (1999) use the above-mentioned determiners summarized in two key groups: structural and external variables. The structural and external factors that are of relevance for the exchange rate regime selection are presented in Tables 2 and 3.

Structural parameters	**Flexible**		**Target zone**		**Parity**		**Rigidly fixed**	
	Clear	Managed	Wide	Nar-row	Crawling	Fixed	Currency board	Currency union
Inflation								
- high	yes	yes	yes	no	yes	no	no	no
- low	yes	yes	yes	yes	no	yes	yes	yes
Provisions/ Reserves	yes	yes	yes	yes	yes	yes	yes	yes
- high	yes	yes	yes	no	no	no	no	yes
- low								
Capital mobility								
- high	yes	yes	yes	no	no	no	yes	yes
- low	yes	yes	yes	yes	yes	yes	yes	yes
Labour mobility and nominal flexibility								
- high								
- low	yes	yes	yes	yes	yes	yes	yes	yes
	yes	yes	yes	yes	no	no	no	no
Production and export diversification								
- high	yes	yes	yes	yes	yes	yes	yes	yes
- low	yes	yes	no	no	no	no	no	no

Structural parameters	**Flexible**		**Target zone**		**Parity**		**Rigidly fixed**	
	Clear	Managed	Wide	Nar-row	Crawling	Fixed	Currency board	Currency union
Inflation								
- high	yes	yes	yes	no	yes	no	no	no
- low	yes	yes	yes	yes	no	yes	yes	yes
Provisions/ Reserves	yes	yes	yes	yes	yes	yes	yes	yes
- high	yes	yes	yes	no	no	no	no	yes
- low								
Capital mobility								
- high	yes	yes	yes	no	no	no	yes	yes
- low	yes	yes	yes	yes	yes	yes	yes	yes
Labour mobility and nominal flexibility								
- high								
- low	yes	yes	yes	yes	yes	yes	yes	yes
	yes	yes	yes	yes	no	no	no	no
Production and export diversification								
- high	yes	yes	yes	yes	yes	yes	yes	yes
- low	yes	yes	no	no	no	no	no	no

Table 2. Structural factors in exchange rate regime selection

Structural parameters	**Flexible**		**Target zone**		**Parity**		**Rigidly fixed**	
	Clear	Managed	Wide	Nar-row	Crawling	Fixed	Currency board	Currency union
Inflation								
- high	yes	yes	yes	no	yes	no	no	no
- low	yes	yes	yes	yes	no	yes	yes	yes
Provisions/ Reserves	yes	yes	yes	yes	yes	yes	yes	yes
- high	yes	yes	yes	no	no	no	no	yes
- low								
Capital mobility								
- high	yes	yes	yes	no	no	no	yes	yes
- low	yes	yes	yes	yes	yes	yes	yes	yes
Labour mobility and nominal flexibility								
- high								
- low	yes	yes	yes	yes	yes	yes	yes	yes
	yes	yes	yes	yes	no	no	no	no
Production and export diversification								
- high	yes	yes	yes	yes	yes	yes	yes	yes
- low	yes	yes	no	no	no	no	no	no

Source: Eichengreen et al. (1998, 1999)

A wide variety of alternatives of exchange rate regime options exist, ranging from rigid fixed forms (monetary union and currency board), intermediate arrangements (crawling or fixed parity and wide or narrow corridor), to flexible arrangements (managed or clean floating). These alternatives are available and possible in *stable macroeconomic situations* with a low inflation rate, a relatively high level of foreign currency reserves, a high level of labour mobility, low capital mobility (incomplete capital deregulation), diversified production and export structures and sustainable fiscal position and flexibility. The selection is narrowed with the existence of negative or limiting macroeconomic variables.

A country with *high inflation* can resort to either relatively flexible regimes, defined by clean and managed floating and wide margin corridors, or crawling parities, defined by a relatively frequent crawling of the central parity in compliance with inflation movements in the form of minor devaluation. Rigidly fixed parities are inadequate due to the unfeasibility to maintain them in inflationary circumstances if restrictive measures of monetary policy are avoided. This regime leads to real exchange rate appreciation, degradation of competitive positions and creating of unsustainable external positions, or a current account deficit. In other words, a high level of inflation is incompatible with maintaining the fixed parity, but countries with chronic inflation and hyperinflation attempt to restrain inflationary expectations with rigidly fixed regimes in order to retain the balance between the internal and external equilibrium necessary for maintaining fixed parities. The initial stabilization phase, in which the exchange rate is used as a nominal anchor, can be clearly recognized in transitional economies in the beginning of the transitory process. However, maintaining the exchange rate and establishing credibility of monetary authorities requires a fulfilment of all necessary preconditions of exerting discipline in economic policy, namely a reduction in inflation.

A country with *low levels of foreign reserves* is limited to regimes that do not require significant intervention of monetary authorities on the foreign exchange market in order to defend the pre-determined national currency parity. With the exception of a monetary union, the selection is confined to relatively flexible arrangements, comprised of clean and managed floating with wide margin corridors. Exchange rates of monetary union member countries are permanently fixed in relation to shared currency and interventions on foreign exchange markets are the responsibility of a joint central bank. Therefore, monetary authorities of member countries are not burdened with foreign reserve levels. The European monetary union is the example of a monetary union with 12 member countries and 12 exchange rates that are permanently fixed in relation to the euro. Considering the lack of monetary sovereignty, the member countries do not enforce an independent monetary policy, nor do they intervene on foreign exchange markets. This situation arises from a lack of national currencies, and the relation between euro and the former currencies have been permanently fixed. Although sporadic and *ad hoc* due to the fluctuating euro in response to

other currency reserves, possible interventions are the responsibility of the European central bank. The examples of a limiting effect of insufficient reserve levels on selection of foreign exchange rate regimes can be found in certain transitional countries in the stabilization phase. In the beginning of the stabilization process, Bulgaria, Romania and Slovenia chose the managed floating regime, although the option of an exchange rate as a nominal anchor was a natural solution based on the necessary disinflation process. Due to the insufficient reserve levels necessary for maintaining the fixed parities, the above-mentioned countries chose the managed or purely floating regime alternatives.

The optimum currency area criteria in the form of *low labour mobility and fiscal inflexibility* have a restrictive effect on the selection of an exchange rate regime. Mobile labour and fiscal transfers do not act as anti-cyclical substitution mechanisms due to the loss of an exchange rate and the presence of monetary policy as an anti-cyclic economic policy instruments, as in the case of fixed exchange rate regime implementation. In the macroeconomic shock phase, a country does not dispose of anti-cyclical instruments that mitigate the effects of shock on the national economy. In these circumstances, clean and dirty floating arrangements, as well as wide margin corridors, are appropriate.

In the case of *capital mobility,* the situation is more specific. High capital mobility is connected with capital account liberalization, which can cause both positive (accumulation import and economic growth inducing) and negative (currency crisis vulnerability) implications. The currency crises in the 1990s proved explicitly the unsustainability of soft parities in the conditions of high capital mobility, or more specifically, of short term portfolio mobility. However, if the parity defence obligation is strong enough in the form of a currency board, dollarization and a monetary union, a narrowing space for speculative impacts presides. Through integration in financial markets, developing countries are confined to the rigidly fixed or relatively flexible arrangements (currency board, dollarization and monetary union, on one hand, or flexible regimes in clean or managed form and wider margin oscillation on the other hand).). 'Impossible trinity' emphasizes the selection of two between three desirable economic policy goals and bipolar hypothesis connected with capital mobility, the choice between the exchange rate stability with a rigidly fixed exchange rate and monetary independence with a flexible exchange rate.

With unfavourable *export and production diversification*, that is to say, economic dependence on traditionally few export products, the limitation in the exchange rate regime selection refers to the application of expressed flexible exchange rates in clean or managed form. If a country with negative export and production structure with the occurrence of negative external shocks (declined global demand for specific products or negative trade ratios) chooses flexible regimes, it can react with currency depreciation (price competitiveness improvement, increased foreign demand, negative external position adjustment)

and expansive monetary policy, thereby reducing negative impacts of a threatening recession on domestic equilibrium.

Table 3. External factors in exchange rate regime selection

External parameters	Flexible		Target zone		Parity		Rigidly fixed	
	Clean	Managed	Wide	Narrow	Crawling	Fixed	Currency board	Currency union
Trade integration								
- high	no	no	yes	yes	yes	yes	yes	yes
- low	yes	yes	no	no	no	no	no	no
Shocks vulnerability								
- symmetric	yes	yes	yes	yes	yes	yes	yes	yes
- asymmetric	yes	yes	yes	no	no	no	no	no
Shock types								
- real	yes	yes	no	no	no	no	no	no
- nominal	no	no	yes	yes	yes	yes	yes	yes
Political integration								
- high	no	no	yes	yes	yes	yes	yes	yes
- low	yes	yes	yes	yes	yes	yes	yes	no

Source: Eichengreen et al. (1998, 1999)

A country maintaining significant *trade relations* with specific regions or partners shall choose the corridor regimes (with wide or narrow margins), parities (crawling or fixed) and rigid parities, having in mind the fact that exchange rate stability stimulates trade activities. A parity or zone in which monetary authorities have to intervene is in positive correlation with exchange rate stability. Conversely, a country with weaker trade integration, represented by higher internal than external trade activities, and a higher indifference to exchange rate oscillations chooses clean or managed flexible exchange rates.

The *economic structure similarity* criteria, also referred to as *symmetric/asymmetric shocks vulnerability,* together with the previously explained trade integration criteria, represent the optimum currency area criterion. Countries with similar economic structures are subject to symmetric shocks, and are therefore able to maintain fixed arrangements, having in mind that it is less likely for asymmetric shock to occur. An asymmetric shock requires an activation of anticyclical instruments, which are blocked in the fixed parity regime. Thus, countries with symmetric shocks compared to trade partners could choose any exchange rate regime. Conversely, the selection is limited to flexible arrangements in the form of clean and managed floating or wide corridors.

Nominal vs. real shock vulnerability is of interest for exchange rate regime selection, along with aspects of asymmetric *vs.* symmetric shocks. Countries susceptible to nominal shocks, or unstable money demand and inflation tendencies, choose the option of a fixed exchange rate as a nominal anchor. The exchange rate as a nominal anchor stabilizes macroeconomic situations, conse-

quently reducing inflationary expectations, therefore obligating monetary authorities to disciplined and credibly aimed behaviour, subject to parity or exchange rate fluctuation margins. If an economy is susceptible to real shocks, or changes in trade ratios and lowered demand for export products, the flexible option with clean or managed fluctuation is favourable. The exchange rate is an automatic stabilizer and corrector of external position, while the autonomous monetary policy is a corrective instrument of internal position.

A country that prefers *political integration* in relation to specific country or region chooses regimes that stabilize or minimize national currency fluctuations in relation to currencies of a specific country or countries. The need for the exchange rate stabilization, in relation to the politically targeted region, eliminates clean or managed floating regimes. In the absence of political aspiration, a country can choose any exchange rate regime, except for monetary union, because it represents the peak of economic, institutional and political integration.

5. Conclusion

Taking into account the advantages and disadvantages of fixed, namely flexible exchange rates, as well as structural and external variables, the economic authorities make decisions about an adequate exchange rate regime. The choice is additionally complicated by the fact that conventional thoughts in relation with positive and negative aspects of application of fixed and flexible exchange rate arrangements are relativized in certain circumstances. Conventional thoughts point to fixed regime superiority with respect of reducing inflationary expectations. Transaction costs and currency risk reduction stimulate trade activities and economic growth. Traditional views about flexible exchange rate regimes indicate the superiority in economic growth induction due to real and external shock absorption. Market mechanism precludes undervalued or overvalued exchange rate positions, and thus the disequilibria in external and internal positions resulting from misalignment effect. However, fixed exchange rates could be more stimulative for economic growth due to trade activity induction, but unsuccessful in inflationary expectation reduction if economic policy is not consistent with the determined parity. Flexible exchange rates do not always reflect changes in fundamental macroeconomic variables, so that the misalignment effect is not completely annulled. Characteristics of specific regimes have to be accepted with certain reserves, with the analysis of structural and external determiners of the exchange rate regime selection. Structural variables point out that the inflation rate, foreign currency reserves, capital and labour mobility and production/export diversification affect the selection of the relevant exchange rate regime. Trade integration, vulnerability to asymmetric/symmetric shocks of either real or external nature and political aspirations are the external factors of significance in the selection process. The country with high inflationary levels prefers the option of an exchange rate as a nominal anchor, although high inflationary

macro ambient does not enable parity maintenance. For fixed exchange rate regimes consistent with economic policy, certain levels of foreign currency reserves are also necessary. Having in mind that fixed regime subordinates the economic policy to the fixed exchange rate defence, the factor mobility is desirable to compensate the loss of monetary policy autonomy. Aside from labour and capital mobility as substitutable mechanisms of an automatic stabilization, a significant production and export diversification is desirable for the fixed exchange rate regime selection. Naturally, low inflation, high levels of foreign currency reserves and incomplete capital deregulation are indicators of strong macroeconomic positions. Strong structural macroeconomic positions decrease limitations imposed on the choice of a exchange rate regime. External factors are important for exchange rate regime choice, along with structural or internal parameters. The country with significant trade integration prefers a fixed regime because of monetary efficiency. The country with symmetric nominal shock also prefers a fixed regime. Symmetric shock lowers the loss of monetary sovereignty, while nominal shock indicates the need for credibility acquirement using the exchange rate as a nominal anchor. The countries with the expressed political aspirations tend to stabilize the exchange rate in relation to a certain country or region such that the fixed regime is an adequate option. Specific conclusions and assumptions of the application of different exchange rate regimes can be singled out. However, a uniform prescription for the exchange rate regime selection cannot be suggested, having in mind relativity and specificity of relevant variables and key advantages/disadvantages of particular regimes.

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Izbor režima deviznog kursa

Rezime: Izbor adekvatnog režima deviznog kursa je vrlo osetljivo područje na kojem se ekonomska vlast predstavlja i potvrđuje. Prednosti i nedostaci fiksnih i fleksibilnih režima deviznih kurseva, sa konvencionalnog aspekta prilično relativizirani, skupa sa simultanim, ne i sinhronizovanim uticajima strukturnih i eksternih faktora, permanentno se propituju tokom kompleksnog procesa donošenja odluke u vezi sa režimom deviznog kursa. U radu je učinjen pokušaj kritičke identifikacije ključnih performansi režima deviznih kurseva, sa naglaskom na kontinuelnoj neuniformisanosti i (ne)izvesnosti trajanja učinjenog izbora.

Ključne reči: Režimi deviznog kursa, Strukturne determinante, Eksterne determinante

JEL: F30, F40